Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

ON SOME VERTEBRATA FROM THE PERMIAN OF ILLINOIS.

BY E. D. COPE..

The first notice of the existence of the Permian formation in Illinois was published in these Proceedings for 1876, p. 404, *et seq.* I then described the genera *Cricotus* and *Clepsydrops*, and a species of fish allied to *Ctenodus.* In the Proceedings of the American Philosophical Society for 1877 (commencing at p. 52), I added descriptions of other species, and in a second paper in the same volume, p. 182, I showed that the entire number known to that date was seventeen. Since then Mr. William Gurley, of Dansville, Ill., has sent me some additional specimens, which increase our knowledge of this interesting fauna.

A tooth in the collection is an incisor of a species of the *Diadectidæ*, a family not hitherto recognized in Illinois, although I have recorded it from Texas and New Mexico. It is more slender than the corresponding teeth of any of the species known to me. I do not know the incisors of the *Chilonyx rapidens.* I note here that the genus *Phanerosaurus* von Meyer, from the Permian of Germany, probably belongs to the *Diadectidæ* or the *Bolosauridæ.* The vertebræ are a good deal like those of *Empedias*,[1] but apparently lack the hyposphen.

Didymodus (?) **compressus** Newberry. *Diplodus* (?) *compressus* Newb. Cope, Proceeds. Amer. Philos. Soc., 1877, 53.

The name *Diplodus* was used by Rafinesque for a valid genus of fishes before it was employed by Agassiz for the present genus. I therefore propose to substitute for it the name *Didymodus.*

Thoracodus emydinus gen. et sp. nov.

Char. gen.—The form of the tooth or jaw on which this genus is proposed, reminds one of that of a *Diodon*, and also of one-half of that of a *Janassa.* It appears to be the half of a bilateral plate, which is divided on the middle line by suture. Its form is somewhat that of the anterior part of an episternal bone of a tortoise. It consists essentially of a smooth border, separated from the remainder of the tooth by a transverse groove. The interior portion is, on the superior face (if the piece belong to the inferior jaw, and *vice versa*), transversely ridged and grooved, after the manner of the genus *Janassa.*

---

[1] **Mittheilungen a. d. Koeniglich. Mineral., Geolog. u. praehistor.-Museum, Dresden; V, Nachträge zur Dyas; Geinitz und Deichmüller, 1882, p. 10.**

Char. specif.—The smooth border is wide above and below. Its edge is produced into a median projection, which is decurved. On the inferior surface it is marked by shallow grooves, which radiate from the groove which bounds it posteriorly, extending nearly to the free edge. Posterior to the bounding groove, the surface is smooth. The posterior surface above has its grooves concentric with the curved free margin. The ridges are narrow, and step-like in position, presenting their free edges backwards. There are no grooves other than these steps. They have an angular curve opposite to the angle of the free margin, and at the angle the groove which separates them is narrowed, while it widens at other points. Free edge of border thickened; surface everywhere smooth.

Measurements.	M.
Length of fragment transversely, . . .	·014
Length of fragment anteroposteriorly, . .	·011
Width of border area at median suture, . .	·005
Seven cross ridges, ...	·005
Thickness at suture at cross-ridges, . .	·002

Ctenodus heterolophus sp. nov.

This species is represented by a single broken tooth, which presents remarkable characters. It had apparently, when perfect, but three crests, which differ greatly in length, diminishing very rapidly from the first or marginal crest.

The crest just mentioned is not only longer, but *much more* elevated than the others, except at the base, where the second crest is the highest. But while the first rapidly rises, the second retains its elevation, and then descends, forming a convex edge, of which the distal part is obtusely serrate. The proximal part of the first crest is worn by friction with the opposing edge of the opposite jaw into a sharp edge, below which its base is covered by a thin layer of the shining cementum which invests the teeth and sides of the second crest. The amount of this shining layer is thus more extensive than in any other species of *Ctenodus* known to me. The third crest, judging by its base of continuity with the second, is very small.

Measurements.	M.
Elevation of first crest at middle, . . .	·0095
Elevation of second crest at middle, . . .	·0065
Length of a tooth of second crest, . . .	·0020

The peculiarities of this tooth suggest that the genus *Gnathorhiza* Cope (Proceedings Amer. Philos. Soc., 1882, p. 629) is Dipnoan, and allied to *Ctenodus*.

Ctenodus vabasensis sp. nov.

This fine species is represented by an almost perfect tooth. It is allied to the *C. fossatus* Cope, but is wider, and the crests do not radiate so equally, but are chiefly directed in one direction as in most species of the genus. The *C. gurleianus* and *C. pusillus* are at once distinguished by the small number of crests, while the *C. periprion* and *C. dialophus* have a larger number of crests, and are otherwise different. *C. porrectus* differs less from it, but has only five $\frac{1}{1}$ crests, while the *C. vabasensis* has six $\frac{1}{1}$. The $\frac{1}{1}$ represents the small posterior (?) crest, which is double. This, with the next one, is directed slightly posteriorly; the fifth is at right-angles to the long axis, and the anterior four extend more or less forwards. They are serrate nearly to their bases, but the teeth are obsolete on their basal halves. The straight part of the internal edge extends as far forwards as the fourth crest, and is continued posteriorly as a short process. No fossæ at ends of crests. Superior face of tooth wide, and slightly concave. The anterior parts of the first and second crests are broken away, so that it is impossible to say whether they are produced as in *C. porrectus*.

Measurements.	M.
Length to marginal base of second crest, . . .	·024
Width at marginal base of second crest, . . .	·009
Width at fourth crest, inclusive of apex, . . .	·015
Width of posterior side, ...	·010
Thickness at base of fifth crest, ...	·005